

Subpart BB—Silicon Carbide Production

§ 98.280 Definition of the source category.

Silicon carbide production includes any process that produces silicon carbide for abrasive purposes.

§ 98.281 Reporting threshold.

You must report GHG emissions under this subpart if your facility contains a silicon carbide production process and the facility meets the requirements of either § 98.2(a)(1) or (a)(2).

§ 98.282 GHGs to report.

You must report:

(a) CO₂ and CH₄ process emissions from all silicon carbide process units or furnaces combined.

(b) CO₂, CH₄, and N₂O emissions from each stationary combustion unit. You must report these emissions under subpart C of this part (General Stationary Fuel Combustion Sources) by following the requirements of subpart C.

§ 98.283 Calculating GHG emissions.

You must calculate and report the annual process CO₂ emissions from each silicon carbide process unit or production furnace using the procedures in either paragraph (a) or (b) of this section. You must determine CH₄ process emissions in accordance with the procedures specified in paragraph (d) of this section.

(a) Calculate and report under this subpart the process CO₂ emissions by operating and maintaining CEMS according to the Tier 4 Calculation Methodology specified in § 98.33(a)(4) and all associated requirements for Tier 4 in subpart C of this part (General Stationary Fuel Combustion Sources).

(b) Calculate and report under this subpart the process CO₂ emissions using the procedures in paragraphs (b)(1) and (b)(2) of this section.

(1) Use Equation BB-1 of this section to calculate the facility-specific emissions factor for determining CO₂ emissions. The carbon content must be measured monthly and used to calculate a monthly CO₂ emissions factor:

$$EF_{CO_2,n} = 0.65 * CCF_n * \left(\frac{44}{12} \right) \quad (\text{Eq. BB-1})$$

Where:

EF_{CO₂,n} = CO₂ emissions factor in month n (metric tons CO₂/metric ton of petroleum coke consumed).

0.65 = Adjustment factor for the amount of carbon in silicon carbide product (assuming 35 percent of carbon input is in the carbide product).

CCF_n = Carbon content factor for petroleum coke consumed in month n from the supplier or as measured by the applicable

method incorporated by reference in § 98.7 according to § 98.284(c) (percent by weight expressed as a decimal fraction).

44/12 = Ratio of molecular weights, CO₂ to carbon.

(2) Use Equation BB-2 of this section to calculate annual CO₂ process emissions from all silicone carbide production:

$$CO_2 = \sum_{n=1}^{12} [T_n * EF_{CO_2,n}] * \frac{2000}{2205} \quad (\text{Eq. BB-2})$$

Where:

CO₂ = Annual CO₂ emissions from silicon carbide production facility (metric tons CO₂).

T_n = Petroleum coke consumption in month n (tons).

Environmental Protection Agency

§ 98.285

$EF_{CO_2,n}$ = CO₂ emissions factor from month n (calculated in Equation BB-1 of this section).

2000/2205 = Conversion factor to convert tons to metric tons.

n = Number of month.

(c) If GHG emissions from a silicon carbide production furnace or process unit are vented through the same stack as any combustion unit or process equipment that reports CO₂ emissions using a CEMS that complies with the Tier 4 Calculation Methodology in subpart C of this part (General Stationary

Fuel Combustion Sources), then the calculation methodology in paragraph (b) of this section shall not be used to calculate process emissions. The owner or operator shall report under this subpart the combined stack emissions according to the Tier 4 Calculation Methodology in § 98.33(a)(4) and all associated requirements for Tier 4 in subpart C of this part.

(d) You must calculate annual process CH₄ emissions from all silicon carbide production combined using Equation BB-3 of this section:

$$CH_4 = \sum_{n=1}^{12} [T_n * 10.2] * \frac{2000}{2205} * 0.001 \quad (\text{Eq. BB-3})$$

Where:

CH₄ = Annual CH₄ emissions from silicon carbide production facility (metric tons CH₄).
T_n = Petroleum coke consumption in month n (tons).

10.2 = CH₄ emissions factor (kg CH₄/metric ton coke).

2000/2205 = Conversion factor to convert tons to metric tons.

0.001 = Conversion factor from kilograms to metric tons.

n = Number of month.

§ 98.284 Monitoring and QA/QC requirements.

(a) You must measure your consumption of petroleum coke using plant instruments used for accounting purposes including direct measurement weighing the petroleum coke fed into your process (by belt scales or a similar device) or through the use of purchase records.

(b) You must document the procedures used to ensure the accuracy of monthly petroleum coke consumption measurements.

(c) For CO₂ process emissions, you must determine the monthly carbon content of the petroleum coke using reports from the supplier. Alternatively, facilities can measure monthly carbon contents of the petroleum coke using ASTM D3176-89 (Reapproved 2002) Standard Practice for Ultimate Analysis of Coal and Coke (incorporated by reference, *see* § 98.7) and ASTM D5373-08

Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Laboratory Samples of Coal (incorporated by reference, *see* § 98.7).

(d) For quality assurance and quality control of the supplier data, you must conduct an annual measurement of the carbon content of the petroleum coke using ASTM D3176-89 and ASTM D5373-08 Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Laboratory Samples of Coal (incorporated by reference, *see* § 98.7).

§ 98.285 Procedures for estimating missing data.

For the petroleum coke input procedure in § 98.283(b), a complete record of all measured parameters used in the GHG emissions calculations is required (e.g., carbon content values, etc.). Therefore, whenever a quality-assured value of a required parameter is unavailable, a substitute data value for the missing parameter shall be used in the calculations as specified in the paragraphs (a) and (b) of this section. You must document and keep records of the procedures used for all such estimates.

(a) For each missing value of the monthly carbon content of petroleum coke, the substitute data value shall be the arithmetic average of the quality-